J. Jpn. Bot. **86**: 314–323 (2011)

Hiroyoshi OHASHI[a,]* and Kazuaki OHASHI[b]: **Lectotypification and Identity of *Desmodium japonicum* Miq. (*Leguminosae*)**

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Summary: Among the syntypes of *Desmodium japonicum* Miq., Buerger s.n. (L 0422272) is selected as the lectotype of the name. The lectotype is referable at the present point of view to *Hylodesmum podocarpum* subsp. *oxyphyllum* var. *japonicum* (Miq.) H. Ohashi.

In the protologue of *Desmodium japonicum*, Miquel (1867) quoted following specimens: "Legerunt Buerger (qui *Lespedezam Komahagi* dixit), Textor, Mohnike; formam foliolis minoribus ad redicem montis Furu Jama prope oppidium Karatsu ins. Kiushiu invenit Pierot (*Saimi saki* iap); specimina foliolis dilatatis prope Nagasaki legit Oldham n. 357". These specimens are regarded as syntypes of the species, because Miquel did not designate a holotype of the name when he published it.

No subsequent taxonomists who has treated *D. japonicum* lectotypified this name so far. Maximowicz (1886) recorded *Desmodium japonicum* Miq. for his collections from Japan as an infraspecific taxon of *Desmodium podocarpum,* "γ. (unranked) *japonicum*". He did not typify *D. japonicum* in the treatment. Maximowicz's taxon is usually treated at the rank of variety as var. *japonicum* (Miq.) Maxim. (e.g., Matsumura 1899, 1912). Boissieu (1898) adopted *D. podocarpum,* γ. *japonicum* Maxim., but he intended merely to list specimens of the taxon collected mainly by Faurie from Japan.

Later the syntypes of *D. japonicum* were considered to be a mixture of several taxa. After examining them from Leiden Herbarium (L) in 1914, Schindler (1928) determined *D. japonicum* Miq. as a mixture of the following three species: *D. racemosum* (Thunb.) DC., *D. podocarpum* DC., and *D. fallax* Schindl. Nakai (1930) recognized *D. japonicum* also as a mixture of *D. racemosum* and *D. fallax*.

Ohashi (1973) regarded *D. japonicum* as a synonym of *D. podocarpum* that was circumscribed broader than the previous concepts of the species proposed by Candolle (1825a,b), Schindler (1928), and Nakai (1930). He included *D. racemosum* as *D. podocarpum* subsp. *oxyphyllum* (DC.) H. Ohashi and *D. fallax* as *D. podocarpum* subsp. *fallax* (Schindl.) H. Ohashi. Ohashi and Mill (2000) treated *D. japonicum* as a synonym of *Hylodesmum podocarpum* (DC.) H. Ohashi & R. R. Mill subsp. *oxyphyllum* (DC.) H. Ohashi & R. R. Mill. Later Ohashi (2002) adopted the name *D. japonicum* for a variety of *H. podocarpum* subsp. *oxyphyllum*: var. *japonicum* (Miq.) H. Ohashi. In these treatments, however, *D. japonicum* Miq. was not lectotypified.

There are 11 specimens of the syntypes of *Desmodium japonicum* Miq. in the Siebold collection in L: Buerger 1 sheet (Fig. 1); Mohnike 3 (Figs. 2A, B, C); Oldham 1 (Fig. 2D); Pierot 3 (Figs. 3A, B, C); Textor 3 (Figs. 3D, 4A, B). These are listed by Ohba et al. (2005) in detail. Identity of each syntype is summarized in Table 1. Miquel (1867) quoted Pierot with the label noted by him as "*formam foliolis minoribus ……*" (Fig. 3A), but there are two duplicates of the specimen without this label in L (Figs. 3B, C). They should be regarded as syntypes of *Desmodium japonicum*, because both are labeled by Miquel "*Desmodium*

Table 1. Syntypes of *Desmodium japonicum* Miq. in L

Specimen	Bar code number[1]	*Hylodesmum podocarpum*		
Buerger[2]	L 0422272	ssp. *oxyphyllum* (3[3])		Fig. 1
Mohnike	L 0422264	ssp. *oxyphyllum* (4)	ssp. *fallax*(1)[4]	Fig. 2A
Mohnike	L 0422265	ssp. *oxyphyllum* (1)	ssp. *podocarpum* (3)[5]	Fig. 2B
Mohnike	L 0422270	ssp. *oxyphyllum* (2)		Fig. 2C
Oldham 351[6]	L 0793282	ssp. *oxyphyllum* (1)	ssp. *podocarpum* (1)[7]	Fig. 2D
Pierot 62[8]	L 0103976	ssp. *oxyphyllum* (1)	ssp. *fallax* (3)[9]	Fig. 3A
Pierot	L 0422268	ssp. *oxyphyllum* (5)		Fig. 3B
Pierot[10]	L 0422271	ssp. *oxyphyllum* (3)		Fig. 3C
Textor	L 0422263	ssp. *oxyphyllum* (2)	ssp. *podocarpum* (1)[11]	Fig. 3D
Textor	L 0422267	ssp. *oxyphyllum* (3)	ssp. *podocarpum* (2)[12]	Fig. 4A
Textor	L 0422269	ssp. *oxyphyllum* (2)		Fig. 4B

[1] Bar code number on each sheet.

[2] With Buerger's label “Lespedeza Komahagi, Iap” on a small paper.

[3] Number of individuals on the sheet.

[4] 2nd plant from right indicated "b" on the sheet.

[5] Right plants indicated "b" on the sheet.

[6] Erroneously 357 in the protologue. Miquel labeled "*D. japonicum* Miq. β. *dilatatum* Miq.

[7] Lower right plant and a leaf on lower left side.

[8] With Pierot's label "No. 62 *Aeschynomene japonica* Sieb. Ad radicem montis Fire Furu Jama, prope oppidum Karatsu ins Kiu Siu."

[9] Two inflorescences right side indicated "b" on the sheet.

[10] With Pierot's label "*Aeschynomene* species No. 2" on a small paper.

[11] Right plant.

[12] Plants indicated "b" on the sheet.

japonicum Miq. Pierot” which is probably same with the label of the sheet with the original Pierot’s label. Presumably Pierot prepared each one label for his three specimens (Figs. 3A, B, C).

Of the 11 syntypes (Table 1) Buerger (Fig. 1), Mohnike (Fig. 2C), Pierot (Figs. 3B, C) and Textor (Fig. 4B) are referable to *Hylodesmum podocarpum* subsp. *oxyphyllum*, whereas six others are mixtures of subsp. *oxyphyllum* and subsp. *fallax* (Figs. 2A and 3A) or subsp. *podocarpum* (Figs. 2B–D, 3D, 4A). *Hylodesmum podocarpum* subsp. *oxyphyllum* at the present point of view is the major component of *D. japonicum.* On the other hand, Miquel (1867) recognized “*D. podocarpum*” as distinct from *D. japonicum*. His “*D. podocarpum*” includes present *H. podocarpum* subsp. *fallax* and *H. laxum* (e.g., Fig. 4C, subsp. *fallax*; Fig. 4D, a mixture of *H. podocarpum* subsp. *fallax* and *H. laxum*; Fig. 5A, a mixture of *H. podocarpum* subsp. *fallax* and *H. laxum*). Miquel (1867) also indicated a form referable to the present subsp. *fallax* as distinct from *D. japonicum* at the rank of variety as “*D. japonicum* var.” (Figs. 5B, C).

Miquel (1867) characterized *Desmodium japonicum* as “*e sectione Podocarpii, foliis D. laburnifolio persimile, calyce et fructu D. podocapo affine, sed* ... ” in the protologue. He recognized *D. japonicum* has leaves very similar to those of *Ohwia caudata* (as *D. laburnifolia*) which has narrowly elliptic or narrowly ovate, cuneate leaflets. *Hylodesmum podocarpum* subsp. *oxyphyllum* of the syntypes of *D. japonicum* agrees with the characterization of the leaf shape in the protologue, whereas those of subsp. *podocarpum* having obovate or broadly obovate leaflets (Figs. 2B, D, 3D and 4A) and subsp. *fallax* having elliptic or broadly elliptic

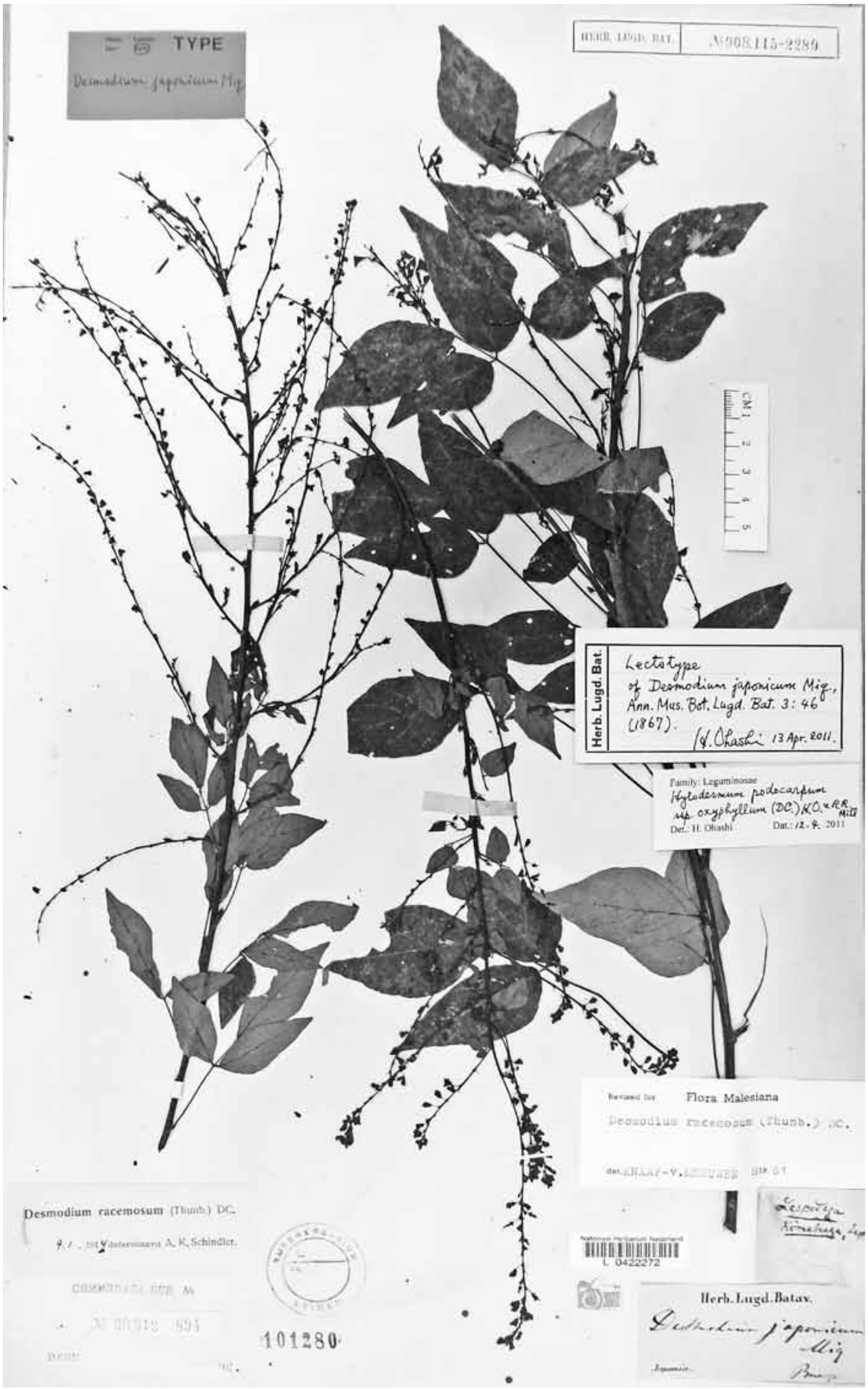
TYPE
Desmodium japonicum Miq.
HERB. LUGD. BAT.
N° 908.145-2289
CM 1 2 3 4 5
Herb. Lugd. Bat.
Lectotype
of Desmodium japonicum Miq.,
Ann. Mus. Bot. Lugd. Bat. 3: 46
(1867).
H. Ohashi 13 Apr. 2011.
Family: Leguminosae
Hylodesmum podocarpum
ssp. oxyphyllum (DC.) H.O. & R.R. Mill
Det.: H. Ohashi Dat.: 12. 4. 2011
Revised for Flora Malesiana
Desmodium racemosum (Thunb.) DC.
Desmodium racemosum (Thunb.) DC.
A. K. Schindler
Nationaal Herbarium Nederland
L 0422272
101280
Herb. Lugd. Batav.
Desmodium japonicum
Miq
Japonia

Fig. 1. Lectotype of *Desmodium japonicum* Miq. (Buerger s.n., L 0422272).

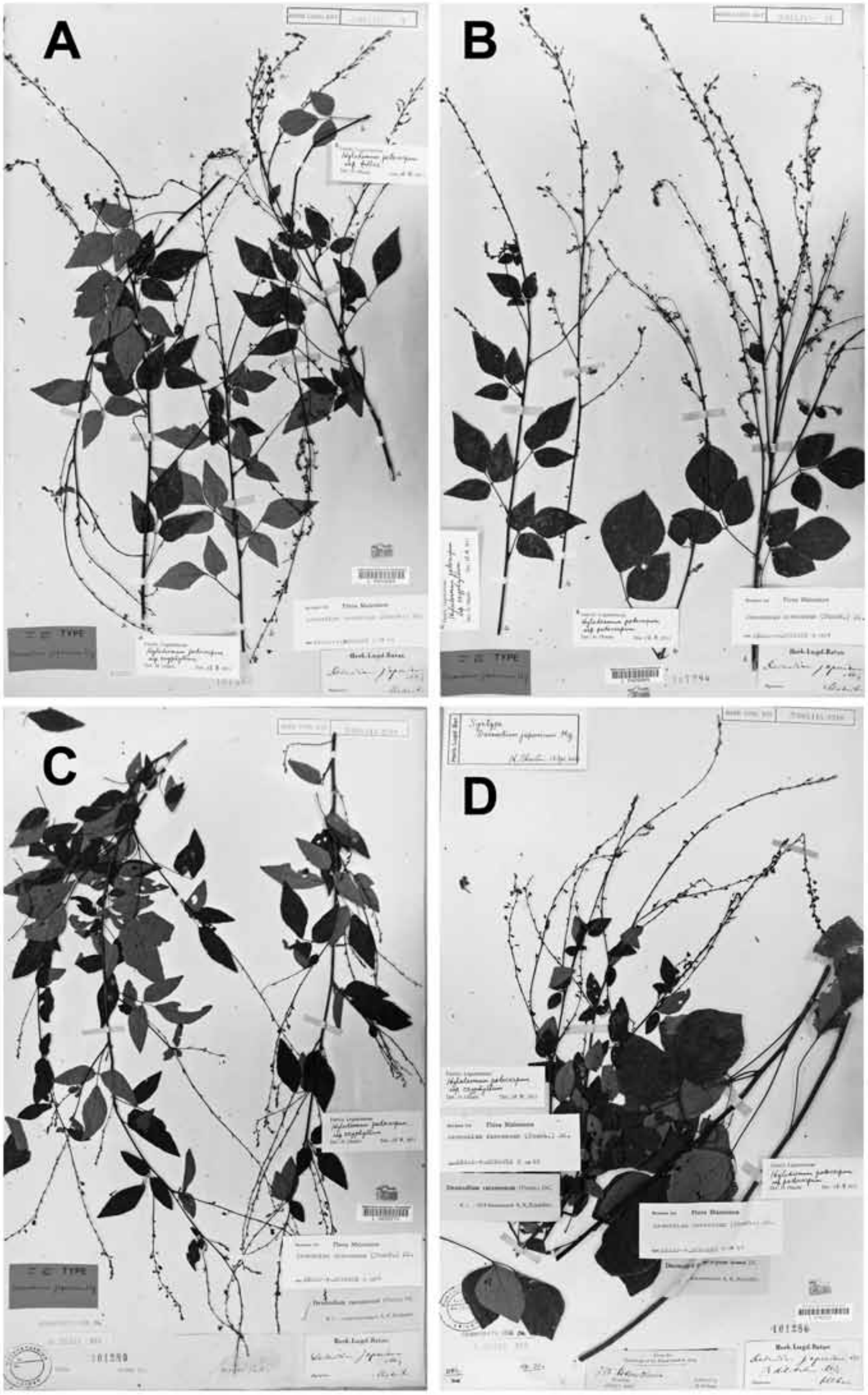

Fig. 2. Syntypes of *Desmodium japonicum* Miq. A. Mohnike [L 0422264], 4 plants of *Hylodesmum podocarpum* subsp. *oxyphyllum* (a) and 1 plant of *H. p.* subsp. *fallax* (b). B. Mohnike [L 0422265]. One plant (left) of *H. p.* subsp. *oxyphyllum* (a) and 3 plants of *H. p.* subsp. *podocarpum* (b). C. Mohnike [L 0422270], 2 plants of *H. p.* subsp. *oxyphyllum.* D. Oldham 351. Nagasaki. 1862. [L 0793282], one plant each of *H. p.* subsp. *podocarpum* (left) and *H. p.* subsp. *oxyphyllum* (right).

leaflets (Fig. 2) have conflict with the protologue, although another syntype referable to subsp. *fallax* (Fig. 3A) has no leaves. A specimen collected by Siebold (L 0422266) was not cited in the protologue of *D. japonicum*, though it was determined by Miquel as *D. japonicum* (Fig. 5D). It is a mixture of one plant each of *H. podocarpum* subsp. *podocarpum* and subsp. *fallax*. Both plants of the specimen have clearly broader leaflets than those of subsp. *oxyphyllum* included in the syntypes. This fact suggests that Miquel considered subsp. *oxyphyllum* is the core of *D. japonicum.* Based on the leaf character, we consider it appropriate to select the lectotype of *D. japonicum* from the syntypes referable to *H. podocarpum* subsp. *oxyphyllum.*

Desmodium japonicum is described in accompany with loments as "*legumen exserted stipitatum 3–1-vulgo 2-articulatum pubescens, hine rectum hinc totum sinuatum*" in the protologue. Of all the syntypes of *Hylodesmum podocarpum* subsp. *oxyphyllum* only that collected by Buerger (Fig. 1) bears loments and characteristics of the loments agree well with the protologue. No other features described in the protologue of *D. japonicum* conflict with the morphological characters of Buerger's specimen. Therefore, Buerger [L 0422272] (Fig. 1) is selected here as the lectotype of *D. japonicum* Miq.

Hylodesmum podocarpum subsp. *oxyphyllum* is divided into two varieties: var. *oxyphyllum* (DC.) H. Ohashi & R. R. Mill and var. *mandshuricum* (Maxim.) H. Ohashi & R. R. Mill (Ohashi and Mill 2000). The lectotype Buerger [L 0422272] is referable to the typical variety of subsp. *oxyphyllum*. The name of the typical variety is based on *Desmodium podocarpum* var. *oxyphyllum* (DC.) H. Ohashi published in 1973 (Ohashi 1973), but *Desmodium podocarpum* var. *japonicum* (Miq.) Maxim. has the priority at the rank of variey. Ohashi (2002) adopted var. *japonicum* (Miq.) H. Ohashi instead of var. *oxyphyllum.* Buerger [L 0422272] is. therefore, referable to *H. podocarpum* subsp. *oxyphyllum* var. *japonicum* (Miq.) H. Ohashi.

Hylodesmum podocarpum subsp. *oxyphyllum* and its var. *japonicum* together with their synonyms are as follows:

Hylodesmum podocarpum (DC.) H. Ohashi & R. R. Mill subsp. ***oxyphyllum*** (DC.) H. Ohashi & R. R. Mill in Edinb. J. Bot. **57**: 182 (2000).

Hedysarum racemosum Thunb. in Murray, Syst. Veg. ed. 14: 675 (May 1784) & Thunb., Fl. Jap. 285 (Aug. 1784), non Aubl. (1755).

Desmodium oxyphyllum DC. in Ann. Sci. Nat. 4: 102 (Jan. 1825) [Type: "in Napaulia", Wallich (G-DC)]; Matsum. in Bot. Mag. (Tokyo) **16**: 77 (1902), p.p., excl. var. *villosum* Matsum.; Ohwi, Fl. Jap. ed. Eng. 562 & ed. rev. 795 (1965); H. Ohashi in J. Jpn. Bot. **41** 154 (1966) & in H. Hara, Fl. E. Himal. 152 (1966).

D. racemosum DC., Prodr. **2**: 337 (Nov. 1825), ut "(Thunb.) DC." [Type: "e Iaponia", Thunberg (UPS)]; Schindl. in Repert. Spec. Nov. Regni Veg. **22**: 259 (1926); Nakai in Bot. Mag. (Tokyo) **44**: 30 (1930); Ohwi, Fl. Jap. 683 (1953).

D. podocarpum DC. subsp. *oxyphyllum* (DC.) H. Ohashi in H. Hara, Fl. E. Himal. **2**: 65 (1971) & in Ginkgoana **1**: 150 (1973).

Podocarpium podocarpum (DC.) Y. C. Yang & P. H. Huang var. *oxyphyllum* (DC.) Y. C. Yang & P. H. Huang in Bull. Bot. Lab. N.E. Forest. Inst., Harbin **4**: 9 (1979).

var. ***japonicum*** (Miq.) H. Ohashi in J. Jpn. Bot. **77**: 170 (2002).

D. japonicum Miq. in Ann. Mus. Bot. Lugd. Bat. **3**: 46 (1867), p.p., excl. *D. thunbergii* DC. (=*Hedysarum heterocarpon* Thunb.). **Lectotype (**designated here): Buerger s.n. (L 0422272), probabiliter e Kiusiu.

D. podocarpum DC. γ. *japonicum* (Miq.) Maxim. in Bull. Acad. Imp. Sci. Saint-Pétersbourg **33**: 30 (1886), p.p. & in Mél. Biol. **12**: 441 (1886), p.p.; Matsum. in J. Sci. Col. Imp. Univ. Tokyo. **12**: 414 (1899) & Index Pl. Jap. 2: 259 (1912), ut "var. *japonicum.*"

D. oxyphyllum DC. var. *japonicum* Matsum.

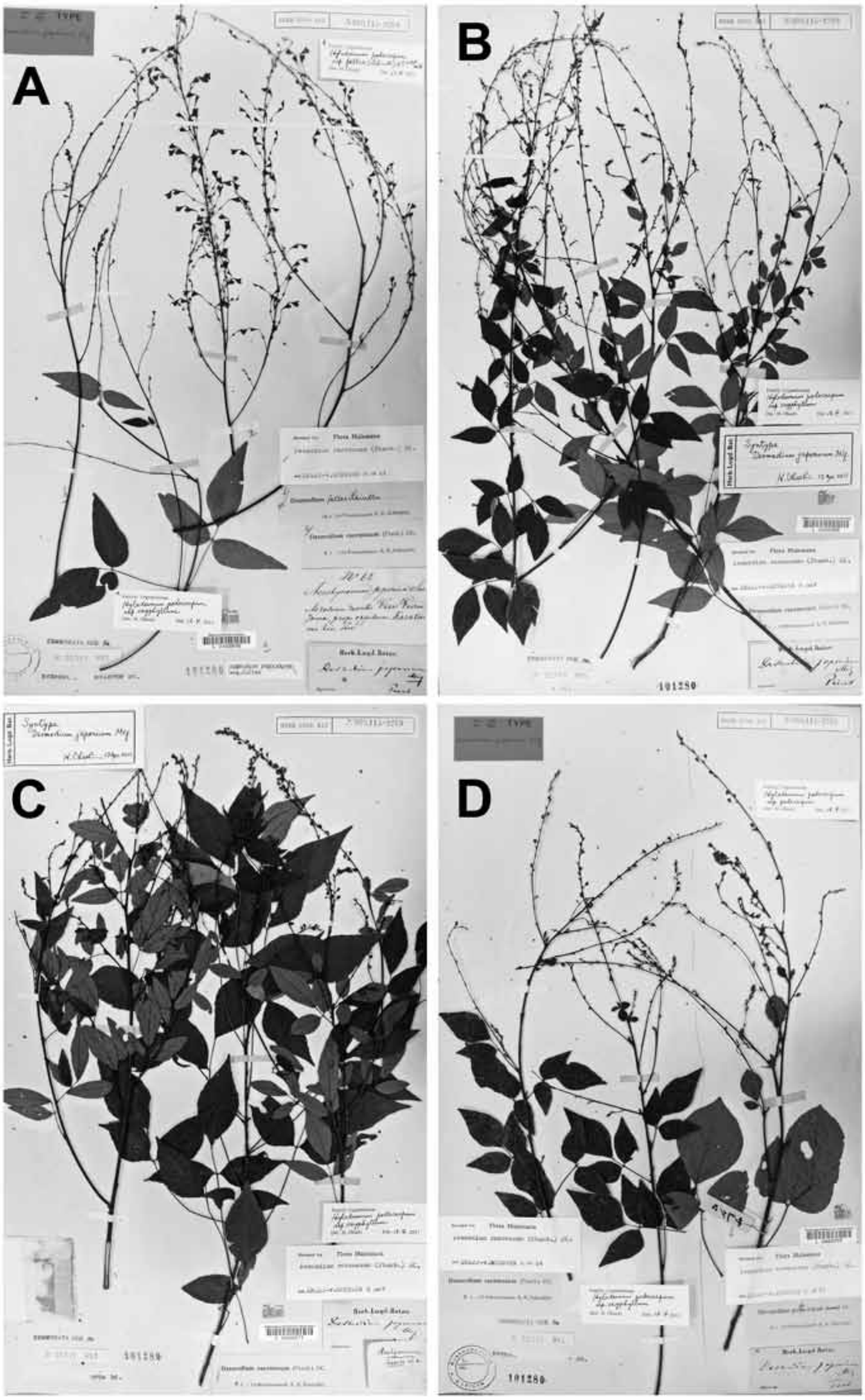

Fig. 3. Syntypes of *Desmodium japonicum* Miq. A. Pierot 62 [L 0103976], 1 plant of *Hylodesmum podocarpum* subsp. *oxyphyllum* (a, with leaves) and 3 inflorescences of *H. p.* subsp. *fallax* (b). B. Pierot [L 0422268], 5 plants of *H. p.* subsp. *oxyphyllum*. C. Pierot [L 0422271], 3 plants of *H. p.* subsp. *oxyphyllum*. D. Textor [L 0422263], 2 plants of *H. p.* subsp. *oxyphyllum* (left) and 1 plant of *H. p.* subsp. *podocarpum* (right).

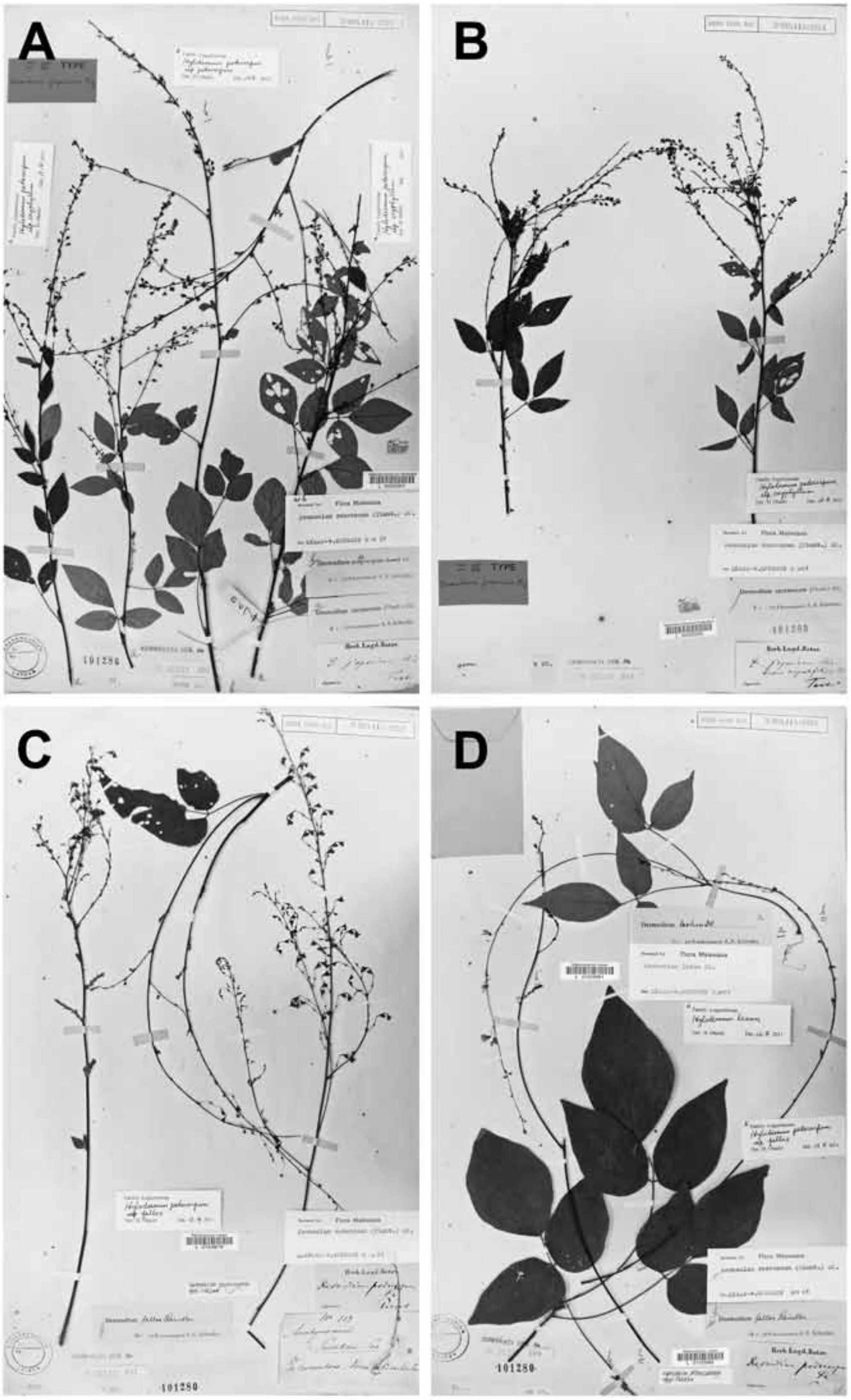

Fig. 4. Syntypes of *Desmodium japonicum* Miq. (A and B) and *D. podocarpum* sensu Miq. (C and D). A. Textor [L 0422267], 3 plants of *Hylodesmum podocarpum* subsp. *oxyphyllum* (a) and 1 plant of *H. p.* subsp. *podocarpum* (b, 2nd from right). B. Textor [L 0422269], 2 plants of *H. p.* subsp. *oxyphyllum*. C. Pierot 113 [L 0103979], *H. p.* subsp. *fallax* in the present sense. D. Unknown collector [L 0103982], each one plant of *Hylodesmum laxum* (a, upper) and [L 0103981], *H. p.* subsp. *fallax* (b, lower).

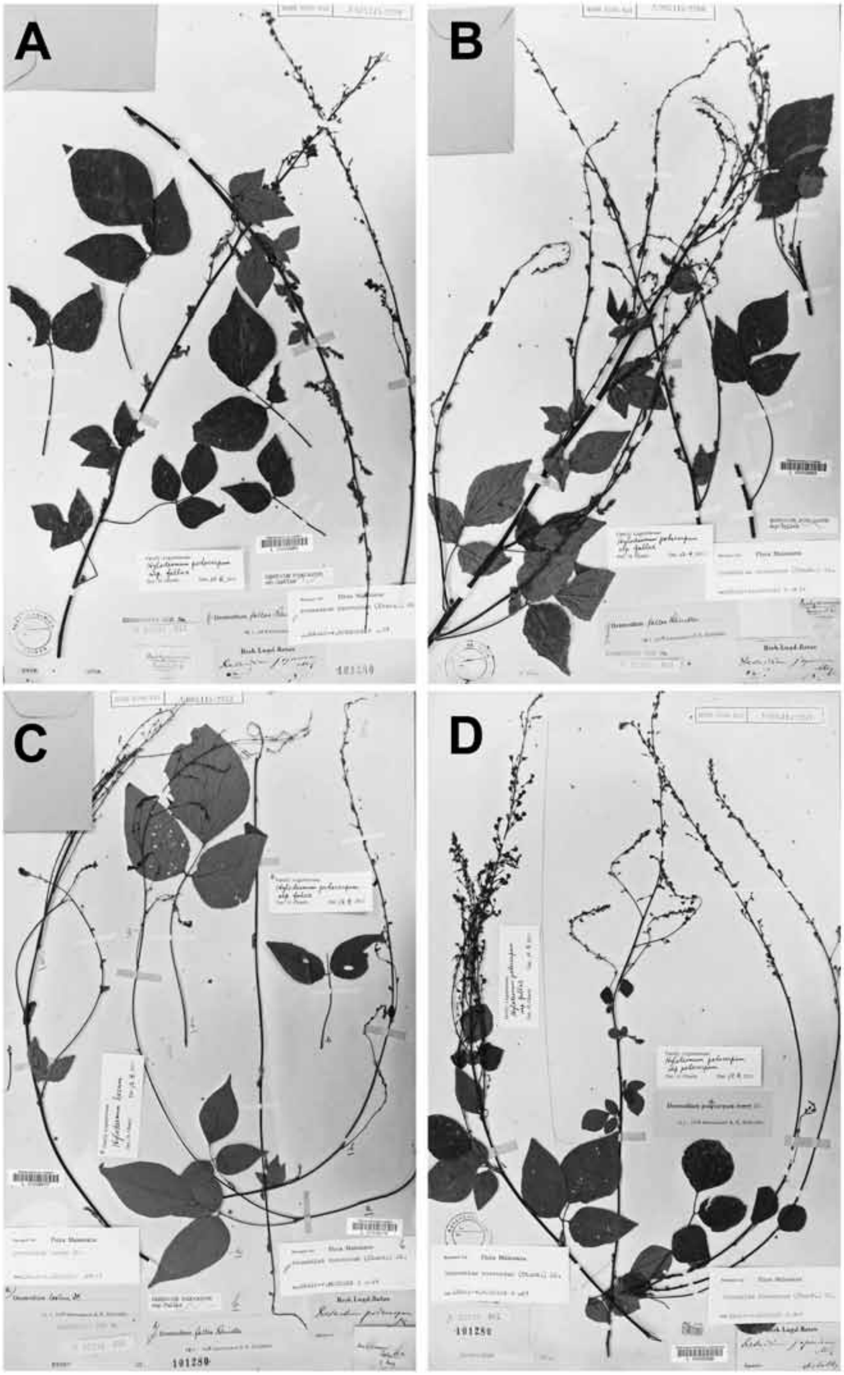

Fig. 5. *Desmodium podocarpum* sensu Miq. (A), "*D. japonicum* Miq. var. ?" (B and C) and a specimen collected by Siebold (D). A. Pierot s.n. [L 0103980], *Hylodesmum podocarpum* subsp. *fallax*, determined by Miquel "*Desmodium japonicum* Miq. var. ?". B. Pierot s.n. [L 0103983], *H. p.* subsp. *fallax*, determined by Miquel as "*Desmodium japonicum* Miq. var. ?". C. Pierot s.n. [L 0103978], 1 plant of *H. laxum* (labelled "a" on the sheet) and [L 0103977], 4 plants of *H. p.* subsp. *fallax* (indicated "b" on the sheet). D. Siebold [L 0422266], 2 plants of *H. p.* subsp. *podocarpum* (right) and 1 plant of *H. p.* subsp. *fallax* (left).

in J. Coll. Sci. Imp. Univ. Tokyo **12** (Tent. Fl. Lutchu.): 415 (1899). [Holoype: [Japan] "insula Oshima". ix 1887. Y. Tashiro s.n. (TI)].

D. podocarpum subsp. *oxyphyllum* var. *oxyphyllum* (DC.) H. Ohashi, Ginkgoana **1**: 152 (1973).

Podocarpium podocarpum var. *japonicum* (Matsum.) P. H. Huang in Bull. Bot. Res., Harbin **18**: 6 (1998).

Hylodesmum podocarpum subsp. *oxyphyllum* var. *oxyphyllum* (DC.) H. Ohashi & R. R. Mill in Edinb. J. Bot. **57**: 183 (2000).

Distribution of var. *japonicum*. Temperate Asia: Bhutan, China, India (Garhwal, Kumaon, and Assam), Japan, Korea, Myanmar, Nepal, Ryukyus (rare), Sikkim, Taiwan (rare), and Vietnam.

We thank Dr. F. Adema and Mr. G. Tijusse in L for their help in examining the syntypes of *Desmodium japonicum* Miq. in the Siebold collections.

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マメ科 *Desmodium japonicum* Miq. のレクトタイプとヌスビトハギの学名（大橋広好[a]，大橋一晶[b]）

Desmodium japonicum Miq. は複数の標本に基づいて発表されたが，ホロタイプが指定されなかった．原発表で引用された標本は *Desmodium japonicum* のシンタイプにあたる．その後，今日までこの学名のレクトタイプは正式に選定されたことはない．2011 年 4 月にライデン大学植物標本館のシーボルトコレクションにある *D. japonicum* のシンタイプを調べた．シンタイプと見なすべき標本は 11 点あり，その内容をみると今日のヌスビトハギ，マルバヌスビトハギおよびケヤブハギに相当する標本から成り立っている．ヌスビトハギ個体だけを貼付けた標本は 5 点，ヌスビトハギとマルバヌスビトハギとが同じ台紙に貼付けられている標本は 4 点，ヌスビトハギとケヤブハギとが同一の台紙に一緒に貼ってある標本は 2 点であった．この結果を本文中の表 1 にまとめた (Table 1)．原記載とシンタイプを検討した結果，*D. japonicum* のレクトタイプは 3 種類の中からヌスビトハギを選ぶことが適当であると判断した．次にシンタイプの中のヌスビトハギ全部の個体を対象として検討した結果，Buerger [L 0422272] が最も原記載に一致すると思われた．本論文でこの標本を *D. japonicum* Miq. のレクトタイプと選定した (Fig. 1).

Ohashi and Mill (2000) はヌスビトハギ，マルバヌスビトハギ，ケヤブハギを *Hylodesmum podocarpum* (DC.) H.Ohashi & R. R. Mill の亜種と認め，それぞれ subsp. *oxyphyllum,* subsp. *podocarpum,* subsp. *fallax* とした．*D. japonicum* はヌスビトハギをレクトタイプとしたので，subsp. *oxyphyllum* の異名となる．さらに subsp. *oxyphyllum* は変種レベルでヤブハギ var. *mandshuricum* (Maxim.) H. Ohashi & R. R. Mill とヌスビトハギ（変種としてのヌスビトハギ）に細分される．このレベルではレクトタイプの Buerger [L 0422272] は変種としてのヌスビトハギと同定できる．Ohashi and Mill (2000) ではヌスビトハギの変種ランクでの学名を var. oxyphyllum (DC.) H.Ohashi & R.R.Mill としたが，変種ランクでの学名としては，*D. japonicum* に基づく *D. podocarpum* DC. γ. *japonicum* (Miq.) Maxim. が最初の変種名であるため，ヌスビトハギの正名は *Hylodesmum podocarpum* subsp. *oxyphyllum* var. *japonicum* (Miq.) H. Ohashi となる (Ohashi 2002).

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